

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

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|--|--|
| Date of mailing (day/month/year) 03 October 2000 (03.10.00) | Applicant's or agent's file reference PFC 1444 PCT |
| International application No. PCT/GB00/00390 | Priority date (day/month/year) 15 February 1999 (15.02.99) |
| International filing date (day/month/year) 09 February 2000 (09.02.00) | Applicant BROWN, Karen, Leanne et al |

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

19 August 2000 (19.08.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

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| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35 | Authorized officer Zakaria EL KHODARY Telephone No.: (41-22) 338.83.38 |
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PATENT COOPERATION TREATY

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P 33

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

RECEIVED

21 NOV 2000

PCT

To:

WISHART, Ian Carmichael
JOHNSON MATTHEY TECHNOLOGY CENTRE
Blounts Court
Sonning Common
Reading RG4 9NH
GRANDE BRETAGNE

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

| | |
|-------------------------------------|------------|
| Date of mailing (day/month/year) | 16.11.2000 |
|-------------------------------------|------------|

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| Applicant's or agent's file reference PFC 1444 PCT | IMPORTANT NOTIFICATION |
|---|-------------------------------|

| | | |
|---|--|--|
| International application No. PCT/GB00/00390 | International filing date (day/month/year) 09/02/2000 | Priority date (day/month/year) 15/02/1999 |
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| Applicant JOHNSON MATTHEY PUBLIC LIMITED COMPANY et al. |
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1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

| | |
|---------------------------------------|--------------------|
| Name and mailing address of the IPEA/ | Authorized officer |
|---------------------------------------|--------------------|

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|---|---|
|  <p>European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465</p> | <p>Fuerbass, C</p> <p>Tel. +49 89 2399-8132</p> |
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

| | | |
|--|---|--|
| Applicant's or agent's file reference PFC 1444 PCT | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/GB00/00390 | International filing date (<i>day/month/year</i>) 09/02/2000 | Priority date (<i>day/month/year</i>) 15/02/1999 |
| International Patent Classification (IPC) or national classification and IPC D21H15/02 | | |
| Applicant JOHNSON MATTHEY PUBLIC LIMITED COMPANY et al. | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

| | |
|---|--|
| Date of submission of the demand 19/08/2000 | Date of completion of this report 16.11.2000 |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized officer Tiercet, M Telephone No. +49 89 2399 8977 |



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB00/00390

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).)*:

Description, pages:

1-15 as originally filed

Claims, No.:

1-25 as originally filed

Drawings, sheets:

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB00/00390

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|------|--------|------|
| Novelty (N) | Yes: | Claims | 1-25 |
| | No: | Claims | |
| Inventive step (IS) | Yes: | Claims | 1-25 |
| | No: | Claims | |
| Industrial applicability (IA) | Yes: | Claims | 1-25 |
| | No: | Claims | |

- 2. Citations and explanations**
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00390

Ad V:

Compared to the document EP-A-0875524, representing the nearest prior art and describing non-woven fibre webs comprising fibers ranging in length from 0.05 to 300 mm, independant claims 1 and 2 as main novel feature prescribe a proportion of 20% fibers having a length less than 3 mm. The novel feature provides good hydration of the substrate even at high current densities. None of the documents cited in the search report are concerned with the problem to be solved or prescribe the specific fibre distribution, so that independant claims 1 and 2 as non-obvious alternatives meet the requirements of Article 33(2) and 33(3) PCT. The same applies to the other independant claims, which refer back to the webs of claims 1 and 2. The industrial applicability is evident.

Ad VII:

The typing error in claim 6 should be corrected ("greater than 5").

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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| Inventive step (IS) | Yes: | Claims | 1-25 |
| | No: | Claims | |
| Industrial applicability (IA) | Yes: | Claims | 1-25 |
| | No: | Claims | |

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see separate sheet

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se separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00390

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Ad VII:

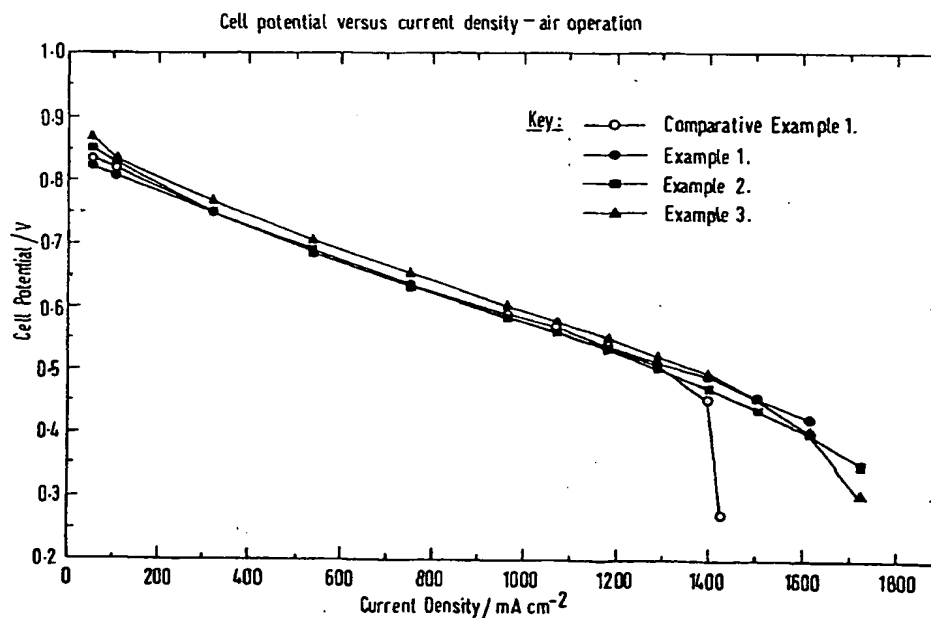
The typing error in claim 6 should be corrected ("greater than 5").



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

| | | | |
|--|--|--|--|
| (51) International Patent Classification ⁷ : D21H 15/02, H01M 2/16 | | A1 | (11) International Publication Number: WO 00/47816 |
| | | | (43) International Publication Date: 17 August 2000 (17.08.00) |
| (21) International Application Number: PCT/GB00/00390 | | (81) Designated States: CA, JP, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). | |
| (22) International Filing Date: 9 February 2000 (09.02.00) | | | |
| (30) Priority Data: 9903320.1 15 February 1999 (15.02.99) GB | | Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments. | |
| (71) Applicant (for all designated States except US): JOHNSON MATTHEY PUBLIC LIMITED COMPANY [GB/GB]; 2-4 Cockspur Street, Trafalgar Square, London SW1Y 5BQ (GB). | | | |
| (72) Inventors; and | | | |
| (75) Inventors/Applicants (for US only): BROWN, Karen, Leanne [GB/GB]; 45 Churchill Crescent, Sonning Common, Reading RG4 9RU (GB). GASCOYNE, John, Malcolm [GB/GB]; Lyduska, Routs Green, Bledlow Ridge, High Wycombe, Bucks HP14 4BB (GB). RALPH, Thomas, Robertson [GB/GB]; 94 Shaftesbury Road, Reading RG30 2QJ (GB). | | | |
| (74) Agent: WISHART, Ian, Carmichael; Johnson Matthey Technology Centre, Blounts Court, Sonning Common, Reading RG4 9NH (GB). | | | |

(54) Title: NONWOVEN WEB



(57) Abstract

A non-woven fibre web comprising a plurality of fibres in the x- and y-direction of average length greater than 5mm and a plurality of fibres of average length less than 3mm wherein at least a proportion of the fibres of average length less than 3mm are orientated in the z-direction, and wherein the proportion of fibres of average length less than 3mm is at least 20% of the total weight of fibres, and wherein the density of the non-woven fibres web is from 0.1g/cm³ to 0.35g/cm³ is disclosed. Also disclosed is a gas diffusion substrate, a gas diffusion electrode and a membrane electrode assembly comprising said non-woven fibre web.

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB 00/00390

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 D21H15/02 H01M2/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 D21H H01M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| A | EP 0 875 524 A (JOHNSON MATTHEY PLC) 4 November 1998 (1998-11-04) page 3, column 3, line 22 - line 48 | 1 |
| A | EP 0 791 974 A (JOHNSON MATTHEY PLC) 27 August 1997 (1997-08-27) cited in the application | |
| A | FR 2 468 219 A (ALSTHOM CGEE) 30 April 1981 (1981-04-30) | |

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

30 May 2000

Date of mailing of the international search report

07/06/2000

Name and mailing address of the ISA

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Fax: (+31-70) 340-3016

Authorized officer

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